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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,069	04/13/2004	Greg A. Dunko	9314-67	3975

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RALEIGH, NC 27627

EXAMINER
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LU, ZHIYU

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/823,069

Applicant(s)

DUNKO, GREG A.

Examiner

Zhiyu Lu

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,5-7,9,11-14,16,18-20,22,24 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,9,11-14,16,18-20,22,24 and 26-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 5-7, 9, 11-14, 16, 18-20, 22, 24 and 26-30 are rejected under 35

U.S.C. 102(e) as being anticipated by Kim (US Patent#6862432).

Regarding claim 1, Kim anticipates a portable electronic device, comprising:

a housing (Fig. 5);

an antenna associated with the housing (76 of Fig. 5); and

a multi-mode matching circuit operatively associated with the antenna (50 of Fig. 1), the multi-mode matching circuit being configured to operate in a first mode when the housing of the portable electronic device is in a first configuration and in a second mode when the housing of the portable electronic device is in a second configuration (column 2 lines 8-18); and

a sensor (20 of Fig. 1) operatively associated with the multi-mode matching circuit,

wherein the sensor is configured to detect the first configuration of the housing of the portable

Art Unit: 2618

electronic device and/or the second configuration of the housing of the portable electronic device and wherein the multi-mode matching circuit is configured to adjust at least one parameter of the multi-mode matching circuit responsive to the first and/or second detected configurations of the housing of the portable electronic device, and wherein the at least one parameter is stored in a lookup table (column 5 lines 18-64); and

a processor (30 of Fig. 1) operatively associated with the sensor, the processor being configured to locate the at least one parameter in the lookup table using the first and/or second detected configuration of the housing of the portable electronic device as a pointer for an entry in the lookup table (column 4 lines 2-12).

Regarding claim 7, Kim anticipates a mobile terminal as explained in the response to claim 1 above.

Regarding claim 14, Kim anticipates a method of operating a portable electronic device as explained in the response to claim 1 above.

Regarding claim 22, Kim anticipates a method of operating a portable electronic device as explained in the response to claim 1 above.

Regarding claims 3, 9, 16 and 24, Kim anticipates the limitations of claims 1, 7, 14 and 22.

Art Unit: 2618

Kim anticipates the multi-mode matching circuit comprises an impedance matching circuit and wherein the at least one parameter of the multi-mode matching circuit comprises a resistance, a capacitance and/or an inductance (column 4 lines 34-43).

Regarding claims 5, 11, 19 and 27, Kim anticipates the limitations of claims 1, 7, 14 and 22.

Kim anticipates a timer circuit operatively associated with the sensor, wherein the sensor is further configured to detect the first and/or second configuration of the housing of the portable electronic device responsive to expiration of the timer circuit (magnetic sensor, column 5 lines 23-26). Note that a magnetic sensor is a hall effect sensor that detects magnetic field change periodically, which means the magnetic sensor associates with a timer and operates periodically or repeatedly.

Regarding claims 6, 12 and 29, Kim anticipates the limitations of claims 1, 7 and 28.

Kim anticipate a portable electronic device having a flip configuration, wherein the housing of the portable electronic device is in the first configuration when the portable electronic device is open and wherein the housing of the portable electronic device is in the second configuration when the portable electronic device is closed (Fig. 5).

Regarding claim 13, Kim anticipates the limitation of claim 7.

Kim anticipates a retractable antenna, wherein the antenna is in the first position when the retractable antenna is retracted and wherein the antenna is in the second position when the retractable antenna is extended (Fig. 7A).

Art Unit: 2618

Regarding claims 18 and 26, Kim anticipates the limitations of claims 14 and 22.

Kim anticipates detecting a configuration of the housing of the portable electronic device further comprises repeatedly detecting the configuration of the housing of the portable electronic device responsive to a detected change in position of the housing as explained in the response to claim 5 above.

Regarding claims 20 and 28, Kim anticipates the limitations of claims 14 and 22.

Kim anticipates operating the multi-mode matching circuit in a first mode when the detected configuration is a first detected configuration; and operating the multi-mode matching circuit in a second mode when the detected configuration is a second detected configuration (column 5 lines 21-64).

Regarding claim 30, Kim anticipates the limitation of claim 28.

Kim anticipates a retractable antenna, wherein the antenna is in the first detected position when the retractable antenna is retracted and wherein the antenna is in the second detected position when the retractable antenna is extended (Fig. 7A, column 6 lines 23-33).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2618

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 31-33 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent#6862432) in view of Choi et al. (US2004/0185920).

Regarding claim 31, Kim teaches a portable electronic device, comprising:

a housing (Fig. 5);

an antenna associated with the housing (76 of Fig. 5);

a multi-mode matching circuit operatively associated with the antenna, the multi-mode matching circuit being configured to operate corresponding to respective first through second configurations of the housing (column 2 lines 8-18).

But, Kim does not expressly disclose there are at least three configurations of the housing with corresponded three modes.

Choi et al. teach a foldable phone has at least three opening positions detected by magnetic sensors (paragraphs 0010, 0021-0025, Table 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate at least three opening positions and modes taught by Choi et al. into the portable electronic device of Kim, in order to provide more modes with auto-detection.

Regarding claim 35, Kim and Choi et al. teach a method of operating a portable electronic device as explained in the response to claim 31 above.

Regarding claim 32, Kim and Choi et al. teach the limitation of claim 31.

Art Unit: 2618

Kim and Choi et al. teach a portable electronic device having a jack-knife configuration, wherein the first through third configurations of the housing of the portable electronic device correspond to different positions of the portable electronic device having the jack-knife configuration as explained in the response to claim 31 above.

Regarding claims 33 and 36, Kim and Choi et al. teach the limitations of claims 32 and 35.

Kim teaches a sensor operatively associated with the multi-mode matching circuit, wherein the sensor is configured to detect the first through third configurations of the housing of the portable electronic device and wherein the multi-mode matching circuit is configured to adjust at least one parameter of the multi-mode matching circuit responsive to the first, second and/or third detected configurations of the housing of the portable electronic device, and wherein the at least one parameter is stored in a lookup table (column 5 lines 18-64); and

a processor operatively associated with the sensor, the processor being configured to locate the at least one parameter in the lookup table using the first, second and/or third detected configuration of the housing of the portable electronic device as a pointer for an entry in the lookup table (column 4 lines 2-12).

4. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent#6862432) in view of Choi et al. (US2004/0185920) and Choo (US2004/0110541).

Regarding claim 34, Kim and Choi et al. teach the limitation of claim 31.



Art Unit: 2618

Choi et al. teach a camera configured to protrude from the portable electronic device during camera functionality and to retract when not in use (250 of Fig. 1E).

But, Kim and Choi et al. do not expressly disclose the first through third configurations of the portable electronic device correspond to relative positions of the camera.

Choo teaches a camera rotates with respect to a hinge wherein sensor is in detection of camera rotational position (Figs. 2-3, paragraphs 0015-0017).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the portable electronic device of Kim and Choi et al. into having magnetic sensor in detection of camera position taught by Choo, in order to provide detection signal to configure matching circuit.

### *Conclusion*

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2618

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhiyu Lu whose telephone number is (571) 272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu  
March 1, 2007

  
**NAY MAUNG**  
**SUPERVISORY PATENT EXAMINER**